

Claims

We Claim:

1. An apparatus for receiving communication signals from satellites, comprising:
  - a plate of light channel material, the plate having a top surface and a bottom surface;
  - a plurality of antenna nodes supported on the top surface of the plate;
  - a support stand detachably attached to the bottom surface of the plate;
  - wherein the plate, the plurality of antenna nodes, and the support stand interconnect to form a lightweight portable antenna assembly.
2. The apparatus of claim 1, wherein the support stand further comprises an electronic control unit detachably attached to the bottom side of the plate.
3. The apparatus of claim 1, wherein at least one of the antenna nodes in the plurality of antenna nodes communicates through the plate of light channel material with the electronic control unit.
4. The apparatus of claim 1, wherein each of the antenna nodes in the plurality of antenna nodes is located in a known position on the plate.
5. The apparatus of claim 1, wherein at least two of the antenna nodes in the plurality of antenna nodes is a dipole antenna element, the plurality of antenna nodes collectively forming a phased array for transmitting and receiving signals.

6. The apparatus of claim 2, wherein the plate is formed from a plurality of subplates formed of light channel material.
7. The apparatus of claim 1, wherein the support stand is collapsible.
8. The apparatus of claim 2, wherein the electronic control unit combines signals from at least two of the antenna nodes and calculates deviations in location and direction to produce a control signal that allows the plate to be positioned.
9. The apparatus of claim 1, wherein the light channel material is a material that is capable of conveying communication signals in the form of light.
10. The apparatus of claim 1, wherein the light channel material is a polycarbonate material.
11. The apparatus of claim 1, further comprising at least one conductor supported by the plate, said conductor providing a power transmission pathway.
12. The apparatus of claim 5, further comprising an alignment feature connected to each of the plurality of subplates, the alignment feature providing means to align the subplate with the electronic control unit.
13. The apparatus of claim 10, further comprising an interconnection pad, wherein the conductor is routed from the antenna node to the interconnect pad.

14. An apparatus for receiving communication signals from satellites, comprising:
  - a plate of light channel material, the plate having a top surface and a bottom surface;
  - a plurality of antenna nodes supported on the top surface of the plate;
  - a support stand detachably fixed to the bottom surface of the plate;
  - an electronic control unit, at least one of the antenna nodes in the plurality of antenna nodes communicating through the plate of light channel material with the electronic control unit;

wherein the plate, the plurality of antenna nodes, the electronic control unit, and the support stand interconnect to form a lightweight portable antenna assembly that is easily disassembled.

15. An apparatus for receiving communication signals from satellites, comprising:
  - a plate of light channel material formed from a plurality of aligned subplates, each of the subplates having a top surface and a bottom surface;
  - a plurality of antenna nodes supported on the top surface of each of the subplates;
  - an electronic control unit contained in a housing that has a bottom surface, at least one of the antenna nodes in the plurality of antenna nodes communicating through the plate of light channel material with the electronic control unit;
  - a collapsible support stand detachably fixed to the bottom surface of the housing;

wherein the plate with the plurality of antenna nodes, the electronic control unit, and the support stand interconnect to form a lightweight antenna assembly that may be disassembled into easily portable components.